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CONTENTS

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VITAMIN REQUIREMENTS OF MAN

IV. VITAMIN B_1

• The multiple nature of vitamin B has been definitely established by intensive research within the past decade. Considerable quantitative information is now available concerning the requirements of certain species of animals for the various factors contained in the vitamin B complex. At the present time, however, the anti-neuritic vitamin B_1 is the only one of these factors for which the minimum requirement for man can be postulated.

Beriberi-preventing diets of Chinese coolies and natives of Java have been estimated to contain 200 International units of vitamin B_1 (1). Practical use is made of knowledge such as this in the Philippines, where the Bureau of Science, in a successful effort to combat beriberi, dispenses tikitiki (vitamin B_1 concentrate from rice polishings) containing approximately 200 International units of vitamin B_1 per daily dose.

It is generally agreed that the absolute requirement for this factor may be variable, depending upon such factors as size and caloric intake of the individual. However, equations have been derived which take into consideration some of these variables and are useful in estimating the adult vitamin B_1 requirement (2).

Application of these equations indicate that approximately 225 International units of vitamin B_1 per day are required for the average American adult. The average daily infant requirement has been estimated to be 50 International units, increasing to 200 units at the time of adolescence (1). The League of Nations Technical Commission recommends a daily intake of over 150 International units for pregnant and lactating women (3).

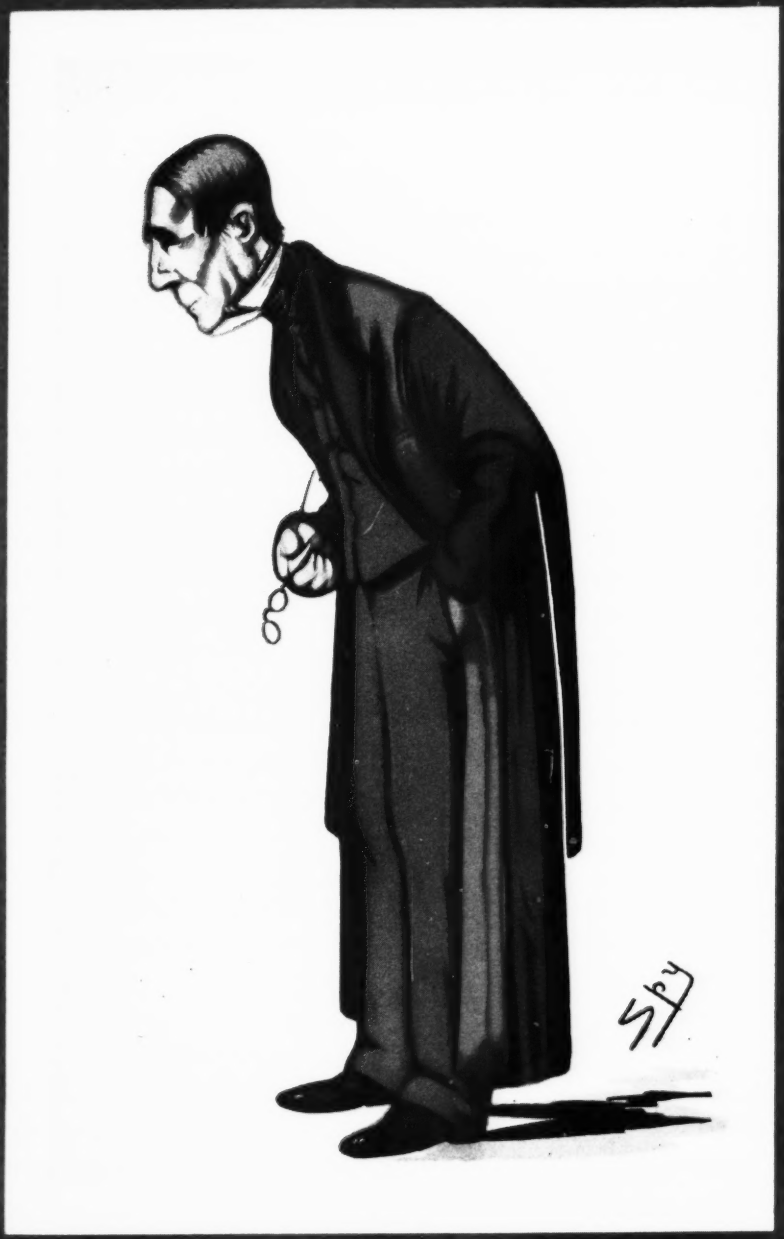
While it may be possible to estimate the daily intake of vitamin B_1 which will prevent clinical beriberi, it is not yet possible to state the minimum amount of the vitamin which, when imposed on an otherwise adequate diet, will promote optimum nutrition. There is increasing belief that some of the vague disorders, noted clinically, may be in reality manifestations of suboptimal vitamin B_1 intake (4).

Today, we have the new concept of nutrition which recommends the intelligent inclusion in the varied dietary regime of foods with known nutritive values—thereby insuring that the individual is not dwelling in "the twilight zone of nutrition". Thus has arisen the concept of "protective foods".

Results of formal bio-assay have established many commercially canned foods as valuable sources of vitamin B_1 (5).

Incorporation in the diet of the wide variety of foods—made available throughout the year by commercial canning—will assist in the acquisition of an adequate supply of vitamin B_1, as well as other members of the B complex, essential to human nutrition and usually occurring in nature along with the antineuritic factor (6).

(1) 1934-35. Am. Pub. Health Assn. Year Book. Page 70
(2) The Vitamin B Requirements of Man. G. R. Cowgill Yale University Press. New Haven. 1935
(3) 1936. Nutr. Abst. and Rev. 5, 855
(4) a. 1936. J. Am. Med. Assn. 106, 261
b. 1935. Ibid. 105, 1580
(5) a. 1932. Ind. Eng. Chem. 24, 457
b. 1932. J. Nutrition 5, 307
c. 1934. Ibid. 8, 449
d. 1935. Ibid. 11, 383
(6) 1934. U.S. Pub. Health Rpts. 49, 754



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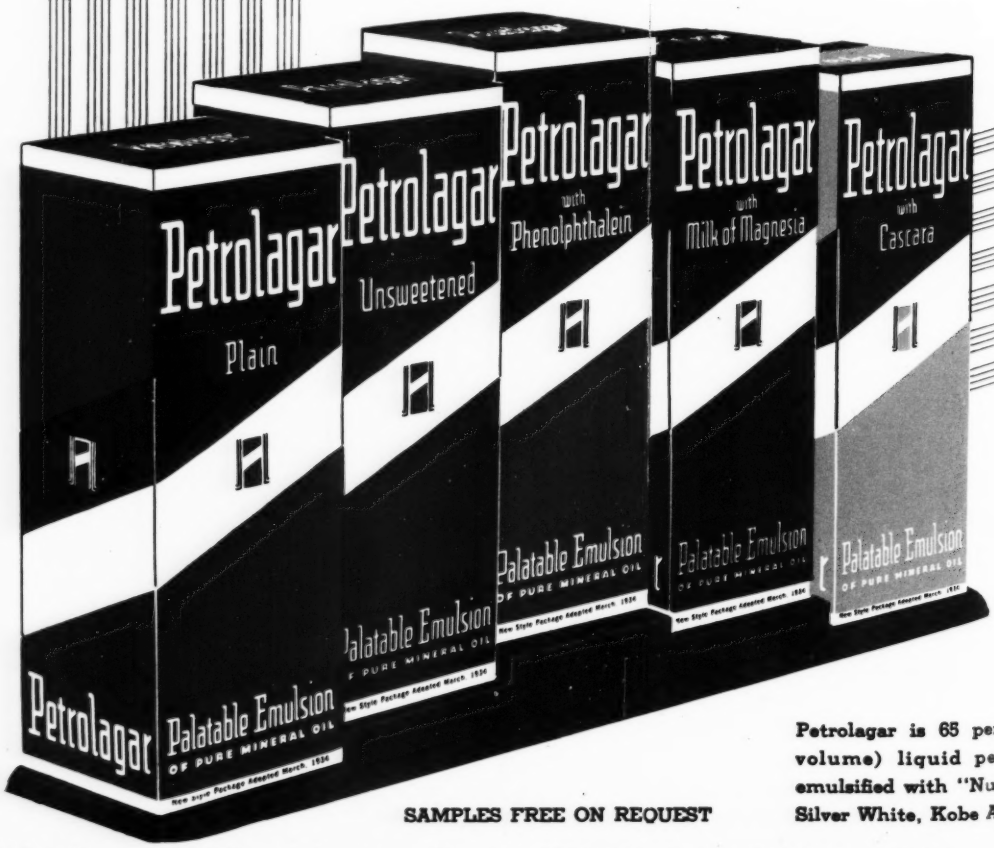

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OBSTETRICAL ANESTHESIA AND ANALGESIA: THEIR EFFECT UPON THE THIRD STAGE OF LABOR*

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Philadelphia, Pa.

The topic most discussed in medicine today is obstetrical anaesthesia and analgesia. Those of us who practice the art of midwifery are well aware of this fact for our journals are filled with reports of assorted methods and new combinations, and every patient who comes to register wants firstto know what we will do to eliminate the labor. She wishes to go to sleep with the first pain and wake up with the baby in her arms, and she is quite sure from her reading that this is not only feasible but also it is her rightful privilege.

The news reporters have their ears to the keyhole at our state and national meetings and the first word concerning obstetrical analgesia is rushed to the columns of the paper and portioned out in large type to the hungry public. Nothing, unless it be contraception or a cancer cure, makes a better headline than "Dr. So-and-So gives to the world a painless childbirth."

In this particular field a certain portion of the profession, and the laity, have gone merrily along, hand in hand. An immature announcement by one of the former is avidly seized upon by the latter and broadcast to the four ends of the earth. Certain women's magazines in particular have taken upon themselves to protege each new obstetrical analgesia and publicize it as the panacea for woman's suffering—not only announce it as a panacea but also as the remedy without which any physician who essays to practice medicine is a nobody or a Rip Van Winkle. This manner of sensationalizing obstetric analgesia started twenty years ago with the far-flung propaganda for "twilight sleep," was repeated in the case of Gwathmey anesthesia, pernocton, and is now busied with the numerous forms of barbituric acid.

A medley of incomplete truths and false impressions, such articles force upon the medical profession, methods of treatment which are often illy adapted to peculiar localities and conditions of practice and thus eventually add to the risks and the mortality of child birth.

The Committee on Public Health Relations of the New York Academy of Medicine in its report on "Maternal Mortality in New York City" (2) has the following to say of this problem:

"The use of anaesthesia during labor and delivery has grown steadily in extent since its introduction in the last century, and is a problem of the most pressing importance, more so in the United States than in any country. This has come about to a large extent through pressure from the lay public. The women of the large urban centers have become steadily more insistent in their demands for shorter and less painful parturition, and the accoucheur may disregard these demands only at great risk to his own practice."

This same committee is of the opinion that the frequent and injudicious employment of deep analgesia and anaesthesia has increased very materially the rate of operative interference, and has on this account been a major factor in preventing a reduction in the high maternal mortality rate in this country.

These two statements have been highly criticized in professional circles, but support to their veracity is found in recent reports of

*Read before the Medical Society of Delaware, Rehoboth, October 13, 1936.

**Associate Professor of Obstetrics, Jefferson Medical College.

the now widely used methods of barbituric acid analgesia, in which it is frankly admitted that operative termination of labor is essential in 40-60% of all deliveries. Galloway and Smith (5) in a study of 500 cases state that operative interference appears inseparable from any effective method of pain relief.

From these remarks let no one assume that the author is unsympathetic to the suffering of childbirth or that he objects to the problems of childbearing being discussed before the laity. On the contrary he strongly advocates measures of relief, and employs them in every labor. He is highly of the opinion, however, that the first responsibility of the accoucheur is the safety of the mother and child, and that whatever method of analgesia is used must first be judged relentlessly in the light of that criterion; that if the beneficial effect of certain methods is broadcast to the public, the baneful ones should be also, so that he who runs may read and every woman may know that deep analgesia and deep amnesia mean increased meddling at delivery, and increased meddling at large, means greater danger.

In spite of the disregard of life and limb which manifests itself in so many phases of modern life—on the highway and in the air, I do not believe that the pregnant woman cares to risk unduly her life or the life of her child, if she knows the facts.

What are these facts? They are exceedingly difficult to ascertain. Reports of recent publication, particularly on the subject of barbiturate and scopolamine analgesia are exceedingly favorable (4, 5, 8, 12). One might say, that during a wave of popularity, such reports are always favorable. It is when the method gets away from the centers of propagation and is taken into general use that questions as to efficacy arise, that weaknesses and objections appear, and that deaths occur. In the crucible of general usage the gold separates from the sludge and that which is materially and permanently worth while is determined and ultimately absorbed into the obstetrical armamentarium.

As the author has sat with representatives of other hospitals on the Committee for Maternal Mortality of the Philadelphia County Medical Society and reviewed each month the maternal deaths of Philadelphia, he has been impressed with the fact that here was the crucible—here were the questionings, the weaknesses, the objections, the mistakes and the deaths. Therefore it is from these statistics largely that I draw my material for this discussion. Let me express at once my deep appreciation to Dr. Philip Williams, chairman of the Committee, for permission to use the records, and to Dr. Ruth Weaver, secretary, for her hearty co-operation in making them available. Neither of the two, however, are to be held responsible for the interpretations and conclusions herein contained; they are my own.

Let us turn to these records of a five-year period for startling support of our contentions. While the general mortality rate in Philadelphia (Chart I) has decreased 24% from 1931 to 1935, this decrease is accounted for solely on the basis of a 49% decline in non-preventable death rate. The preventable death rate has remained uniform throughout the five years. While the death rate per 10,000 live births, which is attributable to errors in judgment and technic on the part of the physician, has decreased 9.5%, yet the proportion of maternal deaths due to these errors has increased 11%.

If one considers the maternal deaths during or within 24 hours after labor (Chart II)—which is the group I intend to draw from in my study of anesthesia—the rate of preventable deaths, and the share in responsibility of the physician for them, rises amazingly. In this group there is no change in the maternal death rate for the five-year period. The non-preventable death rate has decreased 49.3%; the preventable rate has risen 52.5%. The death rate from errors in judgment and technic on the part of the physician as manifested in sudden deaths at delivery has jumped 108.5%, and the proportion of maternal deaths due to these errors has increased 107.3%.

These figures are unbelievable. One might attribute them to changes in personnel or attitude of viewpoint of the committee were it not for the fact that the final classification of each case is in the hands of those who originally started the work in 1931. Then again one might assume that 1931 was a particularly bad year and 1935 an especially good one, but on more careful perusal of the charts one

finds a steady progression from year to year in the direction described.

When these statistics were assembled, I immediately concluded that here was the explanation of our failure to progress. A consideration of the death rate from all other conditions of childbearing (Chart III) confirms this opinion. Here there is a decrease in the maternal death rate of 28.9%, in the non-preventable death rate of 48.6%, in the preventable rate of 11.1%, in the death rate from errors of judgment and of technic on the part of the physician of 41.4%, and in the proportion of deaths due to these errors of 5.5%.

A general reduction of mortality in all its phases then in 876 of 1096 cases; no reduction in mortality in the remaining 220! An improvement in all phases of obstetrical practice except those which have to do with labor —and in the latter an increase of over 100% in the responsibility of the physician for sudden death! End result—no change for five years in the preventable maternal death rate; instead, a general increase of 11.1% in the proportion of maternal deaths due to errors in judgment and technic on the part of the physician!

Something is wrong with our methods of management in labor—probably there are a number of things amiss. Saddest to relate, however, whatever is wrong is going "more wrong" each succeeding year.

CHART I

General Maternal Deaths—Philadelphia 1931-1935

	1931	1932	1933	1934	1935	Total
Live Births	33,773	32,093	29,528	29,751	29,988	155,133
Maternal deaths	269	267	181	198	181	1,096
Maternal death rate per 10,000 live births	79	83	61	66	60	70
Non-preventable deaths	126	116	68	62	57	429
Per 10,000 live births	37	36	23	21	19	27
% of total maternal deaths	46.9%	43.5%	37.6%	31.4%	31.5%	39.2%
Preventable deaths	143	151	113	136	124	667
Per 10,000 live births	42	47	38	45	41	43
% of total maternal deaths	53.1%	56.5%	62.4%	68.6%	68.5%	60.8%
Deaths from error in judgment or technic on part of physician	70	75	57	59	56	317
Per 10,000 live births	21	23	19	20	19	20
% of total maternal deaths	26%	28%	31.4%	29.7%	28.9%	28.9%

COMPARISON OF RATES IN 1931 AND 1935

Maternal death rate	1931—79 1935—60	= Decrease of 24%
Non-preventable death rate	1931—37 1935—19	= Decrease of 48.9%
Preventable death rate	1931—42 1935—41	= No change (1%)
Death rate from errors in judgment and technic on part of physician	1931—21 1935—19	= Decrease of 9.5%
Proportion of maternal deaths due to errors in judgment and technic on part of physician	1931—26 1935—28.9%	= Increase of 11.1%

CHART II

Maternal Deaths During or Within 24 Hours After Full Term or Premature Labor (28-40 Wks.) 1931-1935

	1931	1932	1933	1934	1935	Total
Maternal deaths	44	61	39	37	39	220
Per 10,000 live births	13	19	13	12	13	14
Non-Preventable deaths	24	32	13	12	11	92
Per 10,000 live births	7.1	9.9	4.4	4.3	3.6	5.8
% of maternal deaths	54.5%	52.5%	33.3%	32.3%	28.2%	41.3%
Preventable deaths	20	29	26	25	28	128
Per 10,000 live births	5.9	9.0	8.8	8.4	9.0	8.2
% of maternal deaths	45.5%	47.5%	66.7%	67.6%	71.8%	58.7%
Deaths from errors in judgment or technic on part of physician	12	25	19	21	22	99
Per 10,000 live births	3.5	7.8	6.4	7.0	7.3	6.3
% of maternal deaths	27.2%	40.9%	48.7%	56.7%	56.4%	45 %

COMPARISON OF RATES IN 1931 AND 1935

Maternal death rate	1931—13 1935—13	= No change
Non-preventable death rate	1931—7.1 1935—3.6	= Decrease 49.3%
Preventable death rate	1931—5.9 1935—9.0	= Increase 52.5%
Death rate from errors in judgment and technic on part of physician	1931—3.5 1935—7.3	= Increase 108.5%
Proportion of maternal deaths due to errors in judgment and technic on part of physician	1931—27.2% 1935—56.4%	= Increase 107.3%

CHART III

Maternal Death Rates From All Other Conditions of Childbirth 1931-1935

	1931	1932	1933	1934	1935	Total
Maternal deaths	225	206	142	161	142	876
Per 10,000 live births	66	64	48	54	47	56
Non-Preventable deaths	102	84	55	50	46	337
Per 10,000 live births	30	27	18.6	16.7	15.4	21.2
% of maternal deaths	45.3%	40.7%	38.7%	31.0%	32.4%	38.4%
Preventable deaths	123	122	87	111	96	539
Per 10,000 live births	36	38	29	36.6	32	35
% of maternal deaths	54.7%	59.3%	61.3%	69.0%	67.6%	61.6%
Deaths from errors in judgment or technic on part of physician	58	50	38	38	34	218
Per 10,000 live births	17.5	15.2	12.6	13	12.7	13.7
% of maternal deaths	25.3%	24.3%	26.7%	24.2%	23.9%	24.8%

COMPARISON OF RATES IN 1931 AND 1935

Maternal death rate	1931—66 1935—47	= Decrease 28.9%
Non-preventable death rate	1931—30 1935—15.4	= Decrease 48.6%
Preventable death rate	1931—36 1935—32	= Decrease 11.1%
Death rate from errors in judgment and technic on part of physician	1931—58 1935—34	= Decrease 41.4%
Proportion of maternal deaths due to errors in judgment and technic on part of physician	1931—25.3% 1935—23.9%	= Decrease 5.5%

CHART IV

Distribution of Responsibility for Maternal Deaths in the Various Groups 1931-1935

	All maternal deaths 1931-1935	Maternal deaths during or 24 hrs. after delivery 1931-1935	All other maternal deaths 1931-1935
Maternal deaths	1096	220	876
Per 10,000 live births	70	14	56
Non-preventable deaths	429	92	337
Per 10,000 live births	27	5.8	21.2
% of maternal deaths	39.2%	41.3%	38.4%
Preventable deaths	667	128	539
Per 10,000 live births	43	8.2	35
% of maternal deaths	60.8%	58.7%	61.6%
Deaths from errors in judgment or technic on part of physician	317	99	218
Per 10,000 live births	20	6.3	13.7
% of maternal deaths	28.9%	45 %	24.8%

CHART V

How Is the Medical Profession Fulfilling Its Responsibilities in the Various Groups of Maternal Deaths? 1931 vs. 1935

	All maternal deaths	Maternal deaths during or 24 hrs. after delivery	All other maternal deaths
Maternal death rate	Decrease of 24%	No change	Decrease of 28.9%
Non-preventable death rate	Decrease of 48.9%	Decrease of 49.3%	Decrease of 48.6%
Preventable death rate	No change (1%)	Increase of 52%	Decrease of 11.1%
Death rate from errors in judgment and technic on part of physician	Decrease of 9.5%	Increase of 108.5%	Decrease of 41.4%
Proportion of deaths due to errors in judgment and technic on part of physician	Increase of 11.1%	Increase of 107.3%	Decrease of 5.5%

This afternoon I nibble at one phase of this tremendous problem, conscious that my subject "Obstetrical Analgesia and Anaesthesia" may constitute only a portion of the complex whole. Nevertheless this is an important portion and one that is growing in significance.

Before passing judgment upon an anaesthetic, or upon any combination of analgesics and anaesthetics, one must have in mind the following criteria: first and most important, the safety; second, the qualities of amnesia, analgesia, or anaesthesia; third, the effect upon contractions of the uterus—the tendency to slow labor or predispose to postpartum hemorrhage; fourth, advantages and disadvantages in special cases; fifth, untoward reactions—frequence of idiosyncrasy; sixth, constitutional effects; seventh, effect upon fetal respiration at birth.

In the chapter on anesthesia and pain relief in obstetrics, of the White Conference on Child Health and Protection (1), the dictum is laid down that "certain effects of anesthesia must be avoided, namely: (1) undue prolongation of labor, (2) production of excitation in the mother leading to physical exhaution and loss of cooperation with the obstetrician, (3) any increase of the incidence of operative intervention, (4) danger to the child, either by the production of anoxemia at any time during labor, or by the production of narcosis, and carbon dioxide and oxygen depletion at the time of delivery."

Let us have a glance at the agents which were used in the 220 maternal deaths of labor (Chart VI), consider the part they played in mortality, and compare their properties, good and bad.

CHART VI

Amnesics, Analgesics and Anaesthetics Employed in the Patients who Died During or Within 24 Hrs. After Labor

Agent used	No. of deaths in which agent was employed	Primary cause of death	Possible cause of death	Poorly selected
Ether or nitrous oxide—oxygen—ether	108	1 (1-%)	1 (1-%)	1 (1-%)
Nitrous oxide-oxygen	34	0	1 (3%)	9 (26%)
Gwathmey	7	0	3 (43%)	1 (14%)
Chloroform	3	0	1 (33%)	2 (66%)
Spinal	4	2 (50%)	1 (25%)	1 (25%)
Local	4	0	0	0
Nembutal	11*	2 (18%)	4 (36%)	2 (18%)
Amytal	8*	0	2 (25%)	2 (25%)
None	40	0	0	0

*Possibly more. These deaths are being subjected to further study.

ETHER

Ether, with or without nitrous oxide-oxygen induction, was employed for 108 of the patients who died. In one instance it was indicated as the real cause of death and in another as a possible cause. In both cases it was poorly administered. Bad judgment was shown in its selection as an anesthetic agent in one additional case.

Ether is still the most widely used and the safest of anesthetic agents for use in obstetrics. It may be employed for analgesic effect in early labor in the Gwathmey technic or as "whiffs" during the second stage, then pushed to complete anesthetization at any time by inhalation. It does inhibit the activity of the uterine musculature; its free administration may stop labor pains and its long continuance predispose to relaxation and postpartum hemorrhage.

It has the advantage of simplicity of technic, ease of administration, and wide margin of anesthetic safety. It is of essential value for types of delivery which require relaxation of the uterus, e. g. decomposition of the breech and internal podalic version and extraction. It produced greater relaxation than is necessary for low forceps.

Its administration is singularly free of untoward reaction and idiosyncrasy, although patients vary decidedly as to degree of post-anesthetic nausea, vomiting, and prostration. Its use by inhalation is to be avoided in instances of pulmonary disease.

Administered by the open drop method, ether does not interfere with oxygenation of the fetal blood, and only in prolonged and deep anesthesias does anesthetization of the fetal respiratory center occur.

It is by far the safest and best anesthetic for all-around obstetrical use.

NITROUS OXIDE-OXYGEN

Nitrous oxide-oxygen anesthesia was employed 34 times. In one instance the anesthesia was badly taken (or badly given) and death was attributed to its action. In nine cases bad judgment was shown in its selection as the anesthetic agent.

This form of anesthesia has wide usage and great value. Given by a trained anesthetist the margin of anesthetic safety, while not as great as in the case of ether, is nevertheless ample. During the second stage of labor it may be given for short periods with each labor pain and then pushed to deep anesthesia for delivery.

It has little effect upon the contractility of the uterus and predisposes to postpartum hemorrhage only when insufficient oxygen is administered. The rhythm of labor continues throughout, the patient regaining consciousness quickly between pains. As an agent of anesthesia it is of particular value in the types of delivery in which relaxation of the uterus is neither essential nor desired—cesarean section, forceps, and spontaneous delivery. Its use is to be avoided where relaxation of the uterus is essential to safe manipulation, e. g. in decomposition of the breech and internal podalic version. It was in disregard to this rule that bad judgment was shown in the selection of gas for 26% of its administrations; in a number of such instances rupture of the uterus was discovered at the conclusion of labor.

There appears to be very little idiosyncrasy to gas, although some patients take it much better than others. Since it is necessary in obstetrical anesthesia to keep the patient "pink," ether has to be given as a complemental agent more often than in gas anesthesia of other fields of surgery. It is of great importance that sufficient oxygen (at least 20% in long anesthesias) be administered with nitrous oxide, otherwise the fetus in utero may suffer from anoxemia during the administration and be born in a state of apnea. Resuscitation in such cases is difficult.

Nitrous oxide and oxygen anesthesia is rather expensive. Since the apparatus for its administration is rather cumbersome, and inasmuch as the services of a trained anesthetist are essential, the method is confined pretty largely to hospital practice. There, however, it occupies a very important position.

GWATHMEY

The rectal injection of ether oil mixture as described and advocated by Gwathmey was considered as a possible factor in death in three instances and was injudiciously employed in one of the seven cases. The circumstances of the three cases were somewhat similar—rather long labor, more than ordinary bleeding during and immediately after the placental stage, a sluggishly contracting uterus, further bleeding and gradual lapse into shock when the patient was returned to her bed. All three deaths might have been avoided by more efficacious treatment of the patient as the symptoms appeared.

The Gwathemy method of anesthesia, while not so popular as five years ago, still occupies a place of importance in the obstetrical armamentarium. It, like ether anesthesia, has a wide margin of safety if the patient is watched carefully. Its originator intended it as a method of analgesia for use in the first and second stages of labor. For this purpose it is comparatively successful. It is only slightly effective as an amnesic.

The ether in the rectal mixture, like ether by inhalation, has a tendency to lessen the frequency and force of uterine contractions. An effort has been made to offset this by the

addition of quinine; but even so, labor is sometimes prolonged and the postpartum retraction of the uterus impaired by its action. Personally I am of the opinion that its administration increases quite decidedly the hemorrhage at the placental stage, and that if this is not carefully supervised, serious postpartum bleeding may occur.

This method is particularly well suited to the long labor of some primigravidous patients. Without the morphine, but supplemented with nembutal, paraldehyde, or chloral it makes a splendid analgesia for short labors. It is associated with no untoward reactions or constitutional effects upon the mother. The ether portion of the technic has only limited effect upon the respiration of the newborn child, but the morphine, if given inadvertently too near the time of delivery, may produce troublesome narcosis of the fetal respiratory center.

CHLOROFORM

Chloroform anesthesia was employed in three patients who died of various causes. It was assumed to play a part in the death of one patient and was rather injudiciously chosen as an anesthetic agent in another patient with eclampsia.

I have seen it used so few times that I am incompetent to discuss its effects, its advantages or its disadvantages. We know that the English still like their chloroform, either a la reine for momentary analgesia, or more deeply for obstetrical anesthesia. The South has never given up the use of chloroform, although ethylene is now being used with favor in many of their medical centers.

One fact we do know—the long continued administration of this agent will cause degeneration of the liver, and where liver damage is already existent, as in pre-eclampsia, the employment of chloroform is inexcusable.

SPINAL

In four of the maternal deaths spinal anesthesia was administered. It unmistakably caused the death of two of these patients; in a third, death seemed more likely the result of it than of the other factors present. The fourth case was a poor risk for spinal injection.

It is the consensus of enlightened medical opinion that spinal anesthesia is the most dangerous anesthesia in obstetrics. It depresses blood pressure when blood pressure is already depressed, it relaxes the vascular tree when the latter is already relaxed, it depresses respiration when a normal respiratory excursion and complete oxygenation of the blood are essential, it necessitates placing the woman in the decumbant position with the head dependant when already the flat level position may be productive of synope, it trebles the likelihood of shock when the intra-abdominal tension falls upon delivery of the fetus.

I can see no reason why anyone should select spinal anesthesia for an obstetric operation, particularly if he has reviewed the literature upon the subject and is familiar with the fearful mortality connected therewith. However, now and then there comes a wave of popularity for spinal anesthesia and those physicians who have not experienced, or who do not remember, the fatalities of the last one are caught in its flood. The introduction of the Pitkin solution a few years ago revived interest in this method. I heard Dr. Pitkin state in a lecture before the Obstetrical Socity of Philadelphia that his heavy solution should prove a practical agent for the physician or obstetrician working alone, in that he could administer the anesthetic and then proceed uninterruptedly with the delivery of the baby....To what extremes one's enthusiasm leads!

About this time one of the younger members of our staff became enthralled with the new method of spinal anesthesia and accosted me one evening to relate his twenty or twenty-five successful cases. I apologized for my lack of enthusiasm over his results and stated that it was about time something would happen, if he was using the method for obstetrical patients. The next afternoon, in the clinical amphitheatre, he gave spinal anesthesia for an elective cesarean section and the patient was dead before the surgeon laid the knife to the belly.

Contractions of the uterus continue normally under spinal anesthesia and retraction of the uterus follows the expulsion of the fetus and placenta, promptly and firmly. The anesthetic interferes with the expulsive action of the abdominal muscles; under its influence the patient never advances spontaneously beyond

the first stage of labor. The drug has no effect upon the respiratory center of the fetus.

LOCAL ANESTHESIA

Local anesthesia has no detrimental effect whatever upon the constitution of the patient or the mechanism of labor. It is the least depressing of all methods and should occupy a more definite place in obstetrical practice than it does at present.

Its action is confined to the tissue in which it is injected. It does not weaken the contractions of the uterus, delay labor, or predispose to postpartum hemorrhage. Retraction of the uterus after the third stage, and involution during the puerperium approach more nearly the natural than under any other form of anesthesia.

Some years ago I compared the results in a series of fifty primipara whom I delivered under the routine anesthetics—gas, and gas ether, with an equal group I delivered with morphine scopolamine analgesia and infiltration of the perineum with novocaine. Episiotomy and immediate perineal repair were performed routinely on each group. Without going into the details of the study, I may say it was amazing how much less blood loss there was in the local anesthesia group, how much more rapid the delivery of the placenta, how much more quickly the baby cried, and how much smoother the convalescence, as manifested by the temperature chart.

Because of these facts local anesthesia is a method peculiarly well adapted to the situation where blood loss, relaxation of the uterus, fall in blood pressure, irritation of the lungs, or burden upon the heart would be fatal. For this reason its use is indicated in cesarean section for premature separation of the normally implanted placenta, cesarean section in the presence of poorly compensated heart disease, and pulmonary disease. It may also be employed to advantage in the vaginal delivery of heart and pulmonary cases—morphine analgesia and free infiltration of the perineum permitting of spontaneous delivery, episiotomy, immediate repair, and even low forceps. Gellhorn (6) has so advocated its use for many years.

In all these conditions, the surgeon has the pleasure of generally seeing his patient leave the operating room in as good condition as she entered it.....Learn to use local anesthesia—it will stand you in good stead on many an occasion. Employ ½% solution with a few drops of adrenalin solution, and inject it freely. The method is not sufficiently analgesic for routine use, but it fits the situation perfectly in many complications.

THE BARBITURATES

We now come to those cases in which nembutal and amytal were used as analgesic agents. Herein lies a problem of great moment. Our records reveal that in six of the eleven instances in which nembutal was used death was attributable to the analgesia—quite evidently in two, quite possibly in the other four. In two additional instances the choice of the analgesic method, in view of the patients' condition, seemed singularly bad. In the eight instances of amytal administration there were two in which the analgesia was quite possibly the cause of death and two in which the selection of the method seemed injudicious.

While it is most difficult to say certainly that the analgesic method was responsible for the fatality, yet the evidence is preponderately in that direction. The suspected cases had these points in common: there was no other factor of enough significance to account for fatality; all the patients succumbed with a peculiar type of cyanosis and respiratory depression, rapid thready pulse, and shock without hemorrhage which failed to react to the usual methods of treatment. In several instances the deaths were ascribed to heart failure or to pulmonary embolism. If this were the true diagnosis, it is peculiar that so many instances should have occurred in the barbituric acid group. Of the frequently made diagnosis "pulmonary embolism" Kerr says the following: "There is little doubt that a considerable number of deaths are attributed to pulmonary embolism which should really be relegated to trauma or shock or both. The diagnosis of embolus is a simple explanation and salves the conscience of the person in attendance.

The barbiturates are presumed to have a fairly wide margin of therapeutic safety. This is said to be the case particularly of sodium pentabarbital—or nembutal (Sollman). The reports of Irving (8) and of Galloway (5) and Daichman (4) reveal no maternal anes-

thetic death. There seems, however, to be a wide range of susceptibility to the action of the drug. For instance Galloway describes one case in which 22 grains of nembutal were administered in the course of labor without any apparent effect, and the patient at the conclusion stated that she thought she had had a very hard time. On the other hand, Willcox, in the British Medical Journal of 1934 (1:417-418), emphasizes the importance of peculiar susceptibility to the drug and states that he has seen a number of cases in which sudden collapse, respiratory depression, and death from broncho-pneumonia occurred where only 3 grains were administered. He particularly opposes the use of the drug as a preparatory or basal anesthetic.

The symptoms of acute poisoning with the drug, as set forth by Sollman, are: coma, marked fall in blood pressure, depression or even paralysis of respiration, fall in temperature, asphyxial convulsions, and failure of response to the stimulants indicated. Apparently these same symptoms occur from a smaller dose of the drug in the patient who has idiosyncrasy.

For their effectiveness in labor the barbiturates depend upon ability to produce forgetfulness (amnesia) and very little upon analgesia. Their action in the former direction is greatly enhanced by the addition of scopolamine. The truth of this statement is manifested by the fact that the patient may scream as if in great agony during the course of her labor pains, but wake up the morning after with no clear recollection of what has taken place. In his analysis of obstetrical analgesias, Irving states that he considers no method successful which gives less than 100% amnesia. The factor of relief from pain he considers of minor importance.

The drugs do not inhibit uterine contractions. Labor continues after the administration of the capsules and is undelayed. In some instances the pains appear to become more tumultuous and the delivery hastened. While some cases of postpartum hemorrhage have been reported, their occurrence was probably coincidental, for there seems to be no increase of bleeding.

The advocates of the method claim that their drug supplants morphine, having none of its disadvantages and many advantages. Their drug does not delay labor, it does not narcotize the baby, it makes the patient forget the unpleasant experience of child-bearing. Several state that morphine has no further place in obstetrical practice because of its ill effect on fetal respiration.

The great disadvantage of the barbiturates is restlessness. Patients under their influence may prove difficult to control. In a confused and semi-stuporous state of mind, pain arising from the uterine contraction is misinterpreted, and the parturient becomes uncontrollable.

As the time for actual delivery approaches, the confusion increases. Careful surgical preparation and spontaneous delivery under such circumstances is impossible. Usually the patient has to be anesthetized and the delivery consummated by low or mid forceps. The labor over and the pains dispatched, the patient falls into a deep slumber and remains almost comatose for a number of hours.

The most enthusiastic users of the nembutal scopolamine technic acknowledge that the rate of operative interference is thereby multiplied many times, that forceps delivery becomes essential in from 40-60% of cases.

They also emphasize that patients under the influence of nembutal must be watched with the closest attention, their care individualized, and precautions taken that no injuries occur during the more restless periods. For this reason the method is available for use only in the hospital, it can only be a source of grief if undertaken in the home.

Considering these facts, I question whether nembutal-scopolamine amnesia fulfills the requirements of safety. If the patient is in constant danger of injuring or contaminating herself, if her co-operation in the course of labor is utterly lost, if the incidence of operative interference is multiplied tenfold, if the supervision of the case is transferred from an intelligent conduct of labor into the treatment of drug confusion, I doubt that the method is worth the effect that it produces.

Furthermore, I do not believe that barbiturates will replace morphine or put it in the discard. There is no drug which is more quieting, more restful, more efficacious in long hard labor than morphine. As a matter of

fact, in certain recent reports (4) I find that the addition of morphine to the nembutal or sodium amytal therapy is advised, as a means of quieting the restlessness of the barbiturates!

Gentlemen, I am not enthusiastic about the use of barbiturates in their present form and manner of administration. They are now at the heighth of their popularity (7), soon we will hear more of their deleterious effects, just as we have in the case of twilight sleep, of pernocton, and of Gwathmey. Time only will tell, and time "marches on."

THE THIRD STAGE OF LABOR

Upon review of these many cases in which death occurred during the labor period, in whom a variety of anesthetics were administered and a host of operations performed, one is impressed with the fact that the physician often seemed so bent upon getting his patient asleep and then her baby delivered that he gave little thought to the ultimate outcome of his hasty procedures. He forgot that there is a day of reckoning in every labor—the third or placental stage, and that on that day all his mistakes of judgment and of technic are to confront him.

The lacerations gape, the uterus relaxes, the blood begins to flow, and shortly life's slender stream has trickled out at his feet. He stands there, the melancholy witness of life's greatest tragedy, and suddenly the bitter thought runs through his mind that safety, conservatism, and caution are, after all, the important principles of obstetric practice.

If the third stage reveals the mistakes of the physician's technic, it also carries with it the seamy side of analgesic and anesthetic methods. The agent which gave such peaceful rest has now narcotized the baby, the material which was to bring to the mother forgetfulness of her experience has combined with third stage bleeding to produce obstetrical shock, the anesthetic which made operative delivery possible has now relaxed the uterus and predisposed to postpartum hemorrhage, the incision made in the perineum calls for accurate repair.

The situation requires real generalship. Time does not permit me to go into a discussion of the third stage of labor or the details of its management. Let me set down instead that which, after a good many years of trial and revision, I consider a conservative and safe procedure.

1. The fetus having been delivered, for instance by low forceps and episiotomy, the anesthetic is at once stopped.

2. The uterus is palpated and then entrusted to a nurse, the episiotomy inspected to see that there is no large vessel bleeding.

3. Mucus is removed from the fetal air passages and resuscitation attended to.

4. In the meantime a half ampoule of pituitary extract is given to the patient and the nurse reports on the condition of the uterus.

5. The baby's eyes are treated, the cord dressed, and the child taken away to a place of warmth.

6. Returning to the patient, the uterus is palpated, and when the typical signs of placental separation occur, the placenta is expressed. An ampoule of an active ergot product is given deeply by hypodermic.

7. The uterus is massaged and held until it is consistently hard, and then only entrusted to the nurse again. If bleeding is excessive, it is packed at once.

8. The placenta is examined and its completeness made certain of.

9. Precise inquiring is made as to the pulse, rate and volume, and the condition of the patient. If the report is favorable, immediate repair of the birth canal is decided upon. If it is not completely favorable, the repair is postponed 6 or 8 days or even 2 or 3 months.

10. If conditions permit of repair, anesthesia is re-established, the parts thoroughly reprepared, the operator's gloves (and gown too, if necessary) are changed, and the repair perfumed in good light, with good exposure, and with the same care as a gynecological perineorrhaphy.

11. The operation completed, the parts are dressed, the uterus palpated, the pulse tested, and the baby examined.

12. After dressing, the operator re-examines mother and baby and does not leave until an hour has passed.

Such a routine takes time, but it insures the recognition and prompt treatment of shock and the immediate arrest of hemorrhage. It has served the author well in many a difficult

situation. I give it to you in this rather dogmatic fashion for that reason. One point I insist upon, the third stage of labor and the placental separation merit the most careful attention of the operator and are not to be complicated by continuing anesthesia and attempting to suture extensive episiotomies or lacerations while waiting for their completion. Complete the labor, make sure of the patient, then repair the damage.

SUMMARY

1. Analysis of maternal deaths in the city of Philadelphia for a five-year period reveals an improvement in all forms of obstetrical practice, except that which had to do with the lessening of sudden fatalities in labor.

2. The physician's share in responsibility for this group of fatalities has increased a hundred per cent.

3. Obstetrical anesthesia and analgesia have been considered as possible factors in this unfortunate increase.

4. On the basis of records of death, spinal anesthesia has been condemned as a method of practice, and the barbituric acid derivatives have been found not as free of danger as many reports would indicate.

5. The third stage of labor has been described as the culminating point of errors of judgment and of the ill effects of obstetrical anesthesia. Rules for its management have been laid down. *1930 Chestnut Street*

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DISCUSSION

DR. W. E. BIRD (Wilmington): I do not practice obstetrics, but I want to take this occasion to thank Dr. Montgomery for his presentation, his very complete analysis of experiences during the last five years in Philadelphia.

I am interested in two things he speaks of. First, the effect of the barbituric acid series, and there are numerous things for which they are touted. Their purposes seem to be more than legion. Only the other day in one journal that came to my desk there was an article by two doctors in the Middle West devoted to a new preparation, at least new to me, called sigmodol. I skimmed through that paper, because not being an obstetrician, I really did not read it. One would get the impression that the obstetrical millenium was about to dawn. I am interested to hear the doctor say anything else but the millenium is about to come out of the barbituric acid series.

The second point that has impressed me most is that out of all this array of figures one thing stands out like a sore thumb: the increase in mortality has been 108 per cent, increase in errors in judgment of or technique on the part of the doctor. What wonderful fuel that is going to be to the cultists! How that is going to boost up the ballyhoo for the midwives and other non-medical attendants! You almost hate to publish that phase of the paper, and yet in honesty to the research worker that fact has to be included in the publication.

When similar facts were developed in the New York study a year or two ago, there was an immediate hullabaloo in the lay magazines, to which the doctor has already referred. I had hoped he would point out the remedy, and as he closes the discussion this afternoon I wish he would say to us today what he thinks the remedy should be.

DR. CARL H. DAVIS (Wilmington): The paper this afternoon carries me back twenty-one years to San Francisco where I first met Dr. Montgomery's father. Some of you will recall that in 1912 Godlee came over to this country to talk before the American College of Surgeons in Chicago. Regardless of what the title of his paper was, before he was

through he had spent two-thirds of his time lauding scopolamine-morphine amnesia.

Following that and the magazine articles, there was a demand thrown upon all of us doing obstetrics to give increased relief to patients. That led to attempts in some clinics to project the following morphine amnesia. It led others of us to develop other methods. At the San Francisco meeting, Dr. Pollack and I debated this subject, and my plea at that time was the plea which Dr. Montgomery brings to you today: give relief where you can, but safety at all times.

During the years which have passed many articles have appeared, many methods have been tried, and others are constantly being tried. If you in your practice will follow the advice which Dr. Montgomery has given this afternoon you are not going to go far wrong. Remember, that if you are doing pain relief in obstetrics you must be familiar with all methods of analgesia and anesthesia, and be able to select and use the one best suited to your patient and to the circumstances under which you work.

Like Dr. Montgomery, I have had no enthusiasm for a large dose of the barbiturates. I do not like the deep scopolamine-morphine technique for a similar reason. In these methods you have lost complete control of your patient, you have introduced drugs which you cannot control after they are once introduced, and you must handle the situation as best you can. I do use barbiturates in handling obstetrics and I dare say Dr. Montgomery uses barbiturates in a similar manner. For instance, if a woman comes into the hospital with beginning labor, about that time we do give her a moderate dose of either nembutal or sodium amytal, possibly three grains of nembutal or at most six grains sodium amytal. That insures the patient having relief from the annoying uterine contractions which occur during the major portion of the first stage of labor.

It enables that woman to have a restful sleep and then when she goes into the hard part of labor she is not already nervously exhausted from having lost a night's sleep. Some use the barbiturates as a definite addition to obstetrics, but you can't give them to accomplish amnesia as well as scopolamine and morphine. You are bound to have all the difficulties and all the dangers which are inherent in the scopolamine-morphine method. When our committee at the White House Conference drew up the rules which were mentioned today we felt that the matter of euphoria was the thing which should be emphasized first, last and all the time in the management of obstetric patients.

Much has been written about the difference in mortality in this country and in the Scandinavian countries. A year ago last summer in visiting the hospitals in Scandinavia—Norway, Sweden and Denmark—we took occasion to question the men there about their use of anesthetics and analgesics in the handling of obstetrical patients and found, much to our surprise, that they did not give them at all in normal labor, and as a result they have a very low incidence of operative labor.

There is no doubt in my mind but that the survey in New York and the survey in Philadelphia are absolutely correct in showing that in our enthusiasm about trying to give 100 per cent amnesia or pain relief during delivery we have brought in new dangers which, if the women only appreciated as they should, would be less in demand on the part of our patients. For years I have tried to tell my patients, when they have asked me the question as to what I would do in the way of pain relief, that I would relieve the severe pain of labor, that a certain percentage of them would have almost total pain relief to the point where they would not have recollection of any severe pain later, but that first, last, and all the time we must do the thing which will be safe, both for the patient and for the baby.

DR. ARTHUR C. JOST (Dover): On the division of the classification as between preventable and non-preventable, may I ask what are considered preventable and what are not preventable? The State Board of Health is much interested in this matter, as you know. We want to do what we can toward the reduction, not only of infant mortality but maternal mortality, and the rate in this state, as you know, is tremendously high. It is high in this state, though, by reason of an entirely different cause than any that—or we think so,

at least—was referred to here today, and that is the question of abortions.

That, I believe, in so far as this state is concerned, is our question. I think as it stands it is about 9 to 1, far in excess of what is found in a number of states, but we think that induced abortions, either therapeutically induced or criminally induced, are the cause of this, which will demand an entirely different form of relief or treatment, if it is to be attacked.

PRESIDENT WAPLES: I would like to ask a question in regard to abortions. After the cervix is dilated, Dr. Montgomery, have you ever used morphia together with barbiturate? What are the effects of that?

DR. MONTGOMERY: Mr. Chairman, there were a number of very interesting points brought out in the discussion. Taking these points up in logical sequence, rather than in the order in which they were presented, I would like to say a word or two, first, about the method by which deaths are classified in Philadelphia. The Committee on Maternal Mortality of the medical societies meets each month and the deaths that have occurred in the city are reviewed. A complete history of the patient is presented, the account of the physician who attended the case is presented, and the version of each person who came in contact with that patient.

The cases are then first divided into obstetrical and non-obstetrical; the non-obstetrical deaths include, of course, pneumonia, influenza, chronic nephritis, in certain instances a very extensive heart disease in which death might occur whether pregnancy was present or not. Then the obstetrical deaths are divided into two groups, preventable and non-preventable. The non-preventable group includes the instances in which accidents, unforeseen accidents, in pregnancy have occurred—ectopic pregnancy in which rupture has occurred before the patient or the physician has a chance to diagnose the condition, and the patient has come to the hospital in a moribund state. Instances of true pulmonary emphysema are non-preventable obstetrical deaths.

Then the other group constitutes the preventable cases. Those preventable cases are again divided into two groups: those that could have been prevented by better participation on the part of the patient, provided that she has been given proper information by her physician. That constitutes what we call the P-2 group.

The P-1 group are the preventable cases which are the result of fault in judgment or faults in technique on the part of the physician. And there is a P-3 group in which the preventable element is ascribed to the attendants or the mistakes of the midwife. The explanation of this high mortality, the explanation of the large and increasing number of preventable deaths, I cannot give you. I do feel, however, that a very important element in this increasing mortality is the insistence of the public upon certain methods of conduct in labor.

The public usually gets what it wants. In prohibition days if it wanted liquor it got liquor, and bootleggers were provided to sell it. If the public hears, and women hear that such and such a person is using a certain method of analgesia which causes them to forget labor, which produces complete amnesia, they are going to flock to that person, whether the method is safe or whether it is not, and the probabilities are that they don't know whether the method is safe or not. Until reports are issued to the public of various anesthesia and analgesia methods, and before such methods are tested, the profession at large is thereby going to be rather forced into the use of preparations whose efficacy is not well advised.

The correction of this condition, I believe, is a more thorough education of the public, not only as to the advantages of these methods, but also very frankly as to their disadvantages and their dangers. So that, as I believe I said in the course of this paper, he who runs may read, and the patient who wants complete amnesia or complete analgesia will realize she is assuming considerable risk. It is possible then that our medical societies, state and county, will find it is incumbent upon them in some way to educate the public as to the danger of these methods as well as the danger of permitting these preliminary reports to go out as to their characteristics.

The question as to abortions: I think the combination of morphine and barbiturates is not excessive. Providing you are waiting for

the cervix to dilate and the fetus to be spontaneously expelled, that combination should prove very efficacious. In the meantime, one must be certain of his diagnosis: first, that he is dealing with a miscarriage; and second, he must be certain that undue blood loss does not occur in a preventable case.

PRESIDENT WAPLES: Is Dr. Hayden present? Ladies and gentlemen, I want to introduce Dr. Hayden, secretary of the board of trustees of the American Medical Association, who will be with us tonight and give us a talk at the public meeting. Dr. Hayden!

DR. AUSTIN A. HAYDEN (Chicago): Ladies and gentlemen, Mr. Chairman, and Mr. Secretary: It is a very great pleasure to me to come here, and it was a great pleasure to me to hear the last of Dr. Montgomery's paper. I am not an obstetrician. Is just a word of discussion in order?

I started out to be an obstetrician. Maybe I knew better than to continue, I don't know, but anyway I am not an obstetrician. However, some things that Dr. Montgomery said, especially in his closing discussion, impressed me very much. Reference was made to Dr. Godlee's appearance at Chicago in 1912 at the meeting of the American College of Surgeons, and his use of scopolamine and morphine.

The effect of that was very peculiar in Chicago, when not only the newspapers took it up, as Dr. Montgomery has indicated is frequently done, and they took it up, as you all know, not through official channels at all but by some reporter sitting in the meeting and thinking it was a grand idea if babies could be born without any pain for the mother, but that was publicized generally and a great many scopolamine deliveries followed very shortly in Chicago.

This was coupled with another very unusual happening. There was a professor of obstetrics—and do not think that I speak with disrespect of professors, because especially from 1932 to 1936 one must never think with disrespect of professors—but anyway, this obstetrician felt that not only should babies be born without pain to the mother, but they should be born, let us say, at two o'clock on Sunday afternoon, or at nine o'clock on Monday morning, or at least the date of delivery should be set. He proceeded to furnish deliveries on the minute, as well as without pain.

That created a good deal of what Dr. Montgomery has spoken about as occurring too often in Philadelphia. It is my opinion, Dr. Montgomery, in fact it is my certain knowledge, that they occur too often in Chicago; perhaps too often all over the country, and the attainment of the absolute freedom from pain is something that is fraught, as the essayist has said, with a tremendous amount of danger. When I was a youngster in Wisconsin and was driving my father around, acting as his hitching post for the team of horses that he used to go around with, I frequently attended obstetrical cases with him; that is, I sat out in the kitchen or sat out holding the horses while he was delivering the baby.

What was said about Sweden and Norway reminds me very much of a certain family that my father always depended upon for one delivery a year. They were Norwegians, as we used to say, Norwe*gians*, but wherever you put the emphasis, on whatever syllable of the word, that was done entirely without any sort of analgesia or anesthesia, or anything else, and although the lady always said that this was her last, I have sat in front of that house on six different occasions, six different consecutive calendar years, and the same procedure was repeated. Maybe that was when men were men and women were more willing.

DELAWARE ACADEMY OF MEDICINE

On the fourteenth of May, 1937, the College of Physicians of Philadelphia celebrated the one hundred and fiftieth anniversary of its founding. To the commemoration exercises the College invited delegates from some thirty institutions throughout the world, the Delaware Academy of Medicine being one of the institutions so honored. At the afternoon meeting the Academy was represented by its treasurer, Dr. William H. Kraemer. There were addresses by the Hon. Roland S. Morris and by Dr. David Riesman. At a dinner for the delegates and speakers and, also, at the evening meeting in Mitchell Hall, the Academy was represented by its president, Dr. Lewis B. Flinn. The speakers of the evening were Sir Henry H. Dale, of the Royal Society

of London, and Dr. Hans Zinsser, of Harvard University.

All the delegates must have been impressed by the dignity of the exercises, the enthusiastic interest displayed by the large membership in attendance, and by the sincerity of the speakers. Such an impression is worth recording! The College of Physicians is a voluntary association of physicians, free from the political influence so frequently associated with hospital, university, or organized medical society groups. It was founded in 1787! A discourse delivered before the College on February 6, 1787, on the objects of their institution by Benjamin Rush is astounding in its scope and foresight. In principle these same objectives are true today. In those days, "five years after the peace," the College confined itself largely to pioneering in public health measures which today are almost axiomatic. Later more scientific investigations were made by members and published in the Transactions of the College of Physicians of Philadelphia, the first volume of which appeared in 1793. Benjamin Rush also mentioned a medical library as one of the functions of the institution. Today the College has 1200 current periodicals as part of its 178,000 volumes. The membership totals 680 physicians. The College building is also the meeting place of most of the medical societies of Philadelphia.

For 150 years the institution has endured. It has won world renown. It still has work to do. It has fulfilled many of the "objects" outlined by Benjamin Rush and none more completely than the following:

> "Here the timid may be encouraged, and the sanguine may be taught to doubt. Here the young practitioner may profit by the experience of the old, and the old by the boldness of enquiry, and modern improvements of the young. Here, uniformity in principle, and practice in medicine, will gradually insinuate themselves. Nor will the advantages of our conferences end in the acquisition of knowledge. The heart will naturally interest itself in the pursuits of the head. Here friendships will be contracted and cemented, and occasional and unavoidable suspicions or disputes may here be accommodated by explanation or mediation. By these means we shall become, not only the guardians of the honor of the profession, but likewise of each other's character."

The Delaware Academy of Medicine was founded in 1930. We have made progress. In principle we have many of the same objectives as our venerable neighbor. The worthwhileness of such an institution has been indelibly written in a diary covering a century and a half. What an inspiration this should be to the physicians of Delaware!

WOMAN'S AUXILIARY

The last business meeting of the present season was held on May 11, at the Wayside Inn, Smyrna, with seventeen members attending. After a luncheon we were addressed by Mr. Evans, executive secretary of the Delaware Anti-tuberculosis Society, who discussed the present situation in this state, and gave a short history of Brandywine Sanitorium. Mrs. Norwood Voss spoke about the work and aims of the Child Conservation League, and Mrs. C. E. Wagner told about the Girl Scout work in Delaware, particularly the Summer Day Camps. Mrs. Robert Tomlinson discussed Sunnybrook Cottage. It was decided to give $10 to the new Girl Scout group at Brandywine Sanitorium.

At the national convention held in Atlantic City, June 7 to June 11, Mrs. Victor Nah, of Wilmington, was the delegate, and Mrs. I. R. Mayerberg, of Dover, the alternate. The following were hostesses from Delaware: Mrs. C. Beebe, Mrs. L. J. Jones, Mrs. Roger Murray, Mrs. A. L. Heck, Mrs. W. W. Lattomus, Mrs. Willard Preston, Mrs. John Hynes, Mrs. A. Beatty, Mrs. M. Gay, Mrs. C. McElfatrick and Mrs. C. E. Wagner. It was voted to send $15 to be used for flowers at the convention.

Mrs. J. W. Butler, chairman of sewing, reported that since October there have been six sewing meetings, with 227 garments completed for the Visiting Nurse Association. It was decided to give the association three dozen receiving blankets, which were very much needed. The last sewing meeting was held at the Hotel du Pont, May 18, when Mrs. H. G. Buckmaster was the hostess.

The Medical Society of Delaware will hold its annual convention in Wilmington October 12th to 14th and Mrs. Jones will appoint a committee to plan some special entertainment for the women attending. The nominating committee for elections in October is as follows: Mrs. Butler, Mrs. Preston, Mrs. Stambaugh and Mrs. McCollum.

EDITORIAL

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VOL. IX JUNE, 1937 No. 6

THE CHIROPRACTIC BILL

The Legislature of 1937 passed two medical bills of importance to the profession and to the public. First, certain amendments to the Medical Practice Act were enacted, referring to the examinations, reciprocity, etc. All parties at interest were agreed upon the major changes, and there was no contest over this matter. As soon as the revised Act is printed in booklet form copies may be had from Dr. Joseph S. McDaniel, president of the State Board of Medical Examiners, Dover, Delaware.

The second item was the passage of the Chiropractic Bill. This bill was introduced into the House on March 10th by Rep. John R. Butler, of Middletown. It passed the House on April 5th without a hearing, according to our belief. It was received by the Senate on April 6 and was reported out of the Committee on Miscellaneous "on its merits" on April 16th. Action by vote was deferred by request on account of "Senatorial privilege." The final vote came in the early morning of April 21st, when the vote was 9 for and 6 against. Those voting for were: Chandler (R), Hannam (R), Matthews (R), Moody (D), Poore (D), Steele (R), Sylvester (D), Thomas (D), Walls (R). Those voting against were: Davis (R), Kelly (D), Maloney (R), Marshall (R), Moore (D), Wright (R). A description of this closing session is not necessary here, that has been done by the Literary Digest, Westbrook Pegler, Damon Runyon, and others, but it is apparent from the roll call that the vote was not along party lines. Evidently, a very strong and active lobby was back of the scene. Further comment on the career of this bill in the legislature will be deferred, pending certain investigations.

The medical profession confidently expected the Governor to veto this bill, but their hopes were doomed to disappointment, for the bill received executive approval on May 18th. Thereupon we made the following inquiry of His Excellency:

Hon. Richard C. McMullen,
Dover, Delaware.

My dear Governor:

The medical profession of Delaware is keenly desirous of learning the reasons that prompted you to sign the chiropractor bill. The columns of this Journal are open to you, to any extent that you may desire, to present to the profession whatever statement you may care to make. We request, however, that your material reach us by June 5th, in order that it may be printed in our June issue.

Thanking you in advance, we are

Respectfully yours,
DELAWARE STATE MEDICAL JOURNAL
W. Edwin Bird, Editor.

The Governor's reply was as follows:

Dr. W. Edwin Bird,
Editor, Delaware State Medical Journal,
Du Pont Building,
Wilmington, Del.

Dear Dr. Bird:

I wish to acknowledge your letter of May 24th, in which you ask my reasons for approving the Chiropractor's bill.

Without going into the merits of this profession, its practice has been in effect so long that the public has recognized it and many people believe in it and have assured me that they or some of their families have been benefited by this treatment.

Both bodies of the Legislature believed that the profession should be recognized and the public safeguarded from inefficient and improperly trained practitioners. Members of the General Assembly personally solicited me to sign this bill, having received treatment from various members of the profession.

We should all realize that chiropractors are with us to continue their profession indefinitely, therefore, believing it the best thing to do I approved the bill which calls for a Board of Examiners.

Yours very truly,

RICHARD C. MCMULLEN, Governor.

It is not our intent to berate the legislature or the Governor for their actions in this matter. We do say, however, that we regret them, and we have more than a vague notion that, as time passes, they too may have some regrets.

We give below the full text of this bill. The State Board of Chiropractic Examiners consists of: A. W. Bradley, Porters, 3 years; W. H. Cook, Wilmington, 2 years; J. A. Wicker, Laurel, 1 year. There are approximately thirty chiropractors in Delaware at present.

HOUSE SUBSTITUTE FOR HOUSE BILL NO. 464

An Act Providing for the Creation and Appointment of a State Board of Chiropractic Examiners, Defining Its Powers and Duties; Regulating the Practice of Chiropractic; Providing for the Licensing of Chiropractors and Prescribing Penalties for Any Violations of This Act.

Be It Enacted by the Senate and House of Representatives of the State of Delaware in General Assembly met:

Section 1. There is hereby created a body to be known as the State Board of Chiropractic Examiners, which Board shall consist of three members of State resident chiropractors of good character, who have practiced chiropractic in the State for three years, and who shall be graduates of a recognized, reputable school or college of chiropractic. No two members of said Board shall be graduates of the same school or college of chiropractic.

Section 2. The Governor of the State shall within thirty days after this Act becomes effective, appoint said three members of said Board from five names submitted to him by the Delaware Chiropractic Association. One of said members shall be appointed for the term of one year, another for two years and the third one for three years.

Annually thereafter the Governor shall appoint one member from three names submitted to him by the Delaware Chiropractic Association for the full term of three years. Vacancies for any cause shall be filled by the Governor for the unexpired term. All of said appointees shall possess the qualifications set out in Section One of this Act.

Section 3. The said Board of Chiropractic Examiners shall convene within thirty days after their appointment and elect a president, a vice-president and a secretary-treasurer from their membership who shall hold office during their respective terms as Examiners, and as each respective term expires a new officer shall be elected for the term of the newly appointed Examiner. A majority shall constitute a quorum for business. The said Board shall hold regular meetings at such places as the Board may by resolution decide, during the first week in January and July, respectively, of each year; and shall publish such dates and places of meetings in some newspaper of general circulation in the state, at least fifteen days prior to said meetings, which said meetings shall be for the examination of applicants who wish to practice chiropractic.

Before any applicant shall apply for the examination below set forth, he or she shall furnish proof to said Board that he or she is a graduate of a high school or other school having equal educational requirements, and also a graduate of a chiropractic school or college teaching a four-year course.

Section 4. The said Board shall give to all applicants who wish to practice chiropractic two examinations. The first examination shall be to test whether the person examined has such knowledge of the elementary principles of the Basic Sciences as might be acquired after the completion of study of the following subjects for the number of hours specified: to-wit:

Subject	Hours
Anatomy	400
Physiology	200
Chemistry	200
Pathology	160
Bacteriology	160
Hygiene	40

And upon the applicant passing with a grade of 75% in each subject, the State Board of Chiropractic Examiners shall issue a Certificate to that effect. Upon the completion of this examination, the Board of Chiropractic Examiners shall then conduct a second examination on the subjects usually taught by reputable schools of Chiropractic, designed to ascertain whether the applicant is qualified to practice chiropractic, to-wit: upon the subject of anatomy, physiology, symptomatology, chiropractic orthopedy, principles of chiropractic and adjusting, nerve tracing, chemistry, hygiene, bacteriology, chiropractic analysis and drugless therapy as taught by chiropractic schools and colleges, and upon the applicant passing with a grade of 75% in each subject, and also if upon said examination the said Board shall consider the applicant to be a person of good, moral character, and to have passed a satisfactory examination, as above stated, the said Board shall issue to said person a Certificate stating him or her to be qualified to practice chiropractic.

Before said Certificate is issued, the said applicant shall pay to said Board, the fee or sum of Twenty-five Dollars ($25.00) provided said examination and said fee shall not apply to any resident chiropractor who has been practicing chiropractic in this state for five years continuously prior to the passage of this Act, and provided also, said requirement shall not apply to any bona fide resident chiropractor who is a graduate of a high school or other school having equal educational requirements, and also a graduate of a

chiropractic school or college, and who was practicing in this state prior to January 1, 1937.

After an applicant shall have received his said Certificates, he or she shall apply yearly thereafter for a renewal Certificate for which he or she shall pay to said Board a fee or charge of Five Dollars ($5.00) before said Board shall be required to issue said Certificate showing him or her to be qualified to practice Chiropractic; and, provided also, before said renewal Certificate shall be issued, the applicant shall have attended one of the two-day educational programs as conducted by the Delaware Chiropractic Association, or furnish satisfactory evidence of non-attendance. This renewal fee shall apply to all practitioners. The said sums of Twenty-five Dollars ($25.00) and Five Dollars ($5.00) shall be as compensation for the members of said Board for performing and discharging the duties of their respective office, and defraying all expenses incident thereto.

If, in the discharge of said duties, any member of said Board shall have to leave his or her place in which he or she practices his or her profession, he or she shall receive the sum of three cents for every mile traveled, and also the sum of Ten Dollars ($10.00) for each day he or she is serving on said Board, which said expenses shall likewise be paid out of the above monies received by said Board.

Section 5. Reciprocity. Persons licensed to practice chiropractic under the laws of any other state having equivalent requirements of this Act, shall be issued a Certificate showing him or her to be qualified to practice chiropractic in this state without examination, upon payment of the fee of Twenty-five Dollars ($25.00), as herein provided.

Section 6. Upon obtaining said above-mentioned Certificates any person may practice chiropractic in this state upon his or her first obtaining and paying therefor, the proper license or licenses required to be paid by the laws of this state.

Section 7. Said Board shall have authority to administer oaths, take affidavits, summon witnesses and take testimony as to matters pertaining to their duties. They shall adopt a seal, which shall be affixed to all Certificates issued by them and shall from time to time adopt such rules and regulations as they deem proper and necessary for the performance of their duties, which shall be without prejudice, partiality or discrimination as to the different schools of Chiropractic. The secretary of said Board shall keep a record of the proceedings of the Board which shall at all times be open to public inspection.

Section 8. Definition of Chiropractic:—Chiropractic is the science of locating and removing any interference with the transmission of nerve energy. A license granted under the provisions of this Act shall not entitle a licensee to use drugs, surgery, osteopathy, obstetrics, dentistry, optometry nor chiropody.

Section 9. Chiropractic practitioners shall observe and be subject to all State and municipal regulations relating to the control of contagious and infectious diseases, and any and all matters pertaining to public health, reporting to the proper health officer the same as other practitioners.

Section 10. Any person or persons practicing Chiropractic in this State without first obtaining a proper license or licenses required by the laws of this State, or violating any of the other provisions of this Act, shall be guilty of a misdemeanor and upon conviction thereof in the Court of General Sessions of the State of Delaware shall forfeit and pay a fine of not less than Fifty Dollars ($50.00) nor more than Three Hundred Dollars ($300.00), or be imprisoned for a term not exceeding one year, or both, in the discretion of the Court.

Section 11. If any Section of this Act shall be declared unconstitutional, it shall not render void the rest of the Act.

Section 12. All laws or parts of laws inconsistent with this Act are hereby repealed.

JOHN R. FADER, Speaker of the House.
EDWARD W. COOCH, President of the Senate.
Approved May 18, 1937.
RICHARD C. MCMULLEN, Governor.

MISCELLANEOUS

Laboratory Service

It is desired again to call to the attention of the physicians practicing in the city of Wilmington and vicinity, that a joint arrangement, entered into by the City Board of Health and the State Board of Health, permits of much laboratory work, heretofore carried out for the benefit of these physicians at the State Laboratory in Dover, now being done in the city of Wilmington, at the laboratory of the City Board of Health.

A partial list of the services thus made available is as follows:

Examination of specimens of urine (chemical and microscopic).

Blood counts for patients who may be sent to the laboratory by physicians for the taking of specimens.

Examination of smear specimens, throat, nose or mouth, vaginal, urethral, etc.

Examination of sputum, for tubercle, or for pnuemonia typing, etc.

Examination of blood for typhoid, undulant fever, typhus fever and tick fever.

Examination of feces for typhoid, dysentery, parasites, etc.

Collection of specimens of blood for Wasserman or other tests.

Physicians can best show their appreciation of the service by making use of it.

American Documentation Institute

The American Documentation Institute has been incorporated on behalf of leading national scholarly, scientific and informational societies to develop and operate facilities that are expected to promote research and

knowledge in various intellectual fields.

A first objective of the new organization will be to develop and apply the new technique of microphotography to library, scholarly, scientific and other material. It will be able to conduct scholarly publication by various methods as required by co-operating organizations.

Organized as a Delaware corporation "not for profit" but for educational, literary and scientific purposes, the new organization resulted from a meeting attended by delegates from national councils, societies, and other organizations in Washington on March 13.

The board of trustees elected consists of: Dr. Robert C. Binkley, Western Reserve University; Dr. Solon J. Buck, director of publications, National Archives; Watson Davis, director, Science Service; Dr. James Thayer Gerould, librarian, Princeton University library; Dr. Ludwig Hektoen, chairman, National Research Council.

Such a national organization was foreseen as an outcome of Science Service's documentation activities when they were begun in July, 1935, implemented with grants from the Chemical Foundation and conducted with the cooperation of the U. S. Medical School, the U. S. Department of Agriculture Library, the Bureau of the Census, the Works Progress Administration, the Library of Congress and other agencies.

Bibliofilm Service has been conducted by Science Service in cooperation with the Library of the U. S. Department of Agriculture as a service to research workers, and auxiliary publication through microfilm has been conducted by cooperation with leading scholarly and scientific journals. Science Service's documentation activities will be transferred to the new American Documentation Institute.

Bengamin Gayelord Hauser

The Bureau of Investigation reports that "Dr." Bengamin Gayelord Hauser, widely promoted for a while in various newspapers, is now billed in commercial food pamphlets of the Modern Health Products, Inc., of Milwaukee as a "World Famous Authority on Dietetics...." and "the famous Viennese scientist." He is not a doctor of medicine, not a Viennese and certainly not a scientist. Hauser endorses the concoctions of the Modern Health Products, and the Modern Health Products, of which Carl S. Hauser is vice-president and treasurer, endorses Bengamin Gayelord Hauser. Hauser offers a series of free lectures on diet and health as a "come-on" for a special lecture course to be given at the conclusion of the free lectures. In addition, books, pamphlets and preparations of Modern Health Products, Inc., are recommended. Hauser has a diet for practically every ailment to which mortal flesh is heir. There is the "Mending Diet" (with menus), the "Vitality Diet" (with menus), the "Transition Diet" (with menus), and the "Zigzag Diet." It is recommended that the "Zigzag Diet," together with "Syn," a preparation of Modern Health Products, Inc., be taken by the overweight. The three trump cards in Hauser's healing deck are sodium, potassium and calcium. Hauser also advised his audience: "Never take a trip across the ocean without 'Swiss Kriss.'" Swiss-Kriss also is a concoction sold by Modern Health Products, Inc., and was the subject of a Federal Trade Commission stipulation released on June 25, 1936. In September, 1934 the Food and Drug Administration prosecuted the firm for selling two other products—"Santay-Swiss Anti-Diabetic Tea" and "Nutro-Links"—under fraudulent therapeutic claims. According to the Government chemists, the first-named product consisted of plant drugs including peppermint leaves and stems, malva flowers, senna pods and dog grass, and Nutro-Links was composed of powdered plant material, common salt and Glauber's salt.—(*J. A. M. A.*, April 17, 1937, p. 1359).

J. F. Brinkley and His Formula No. 1020

The Bureau of Investigation reports that the latest development in the career of John R. Brinkley, Del Rio, Texas, is the promotion of formula No. 1020. This concoction, it seems, is given to patients who have previously submitted themselves to the personal ministration of J. R. Brinkley and who are willing to spend sums like $100 for six ampules of the new remedy, in order that they may be still

further benefited by his extraordinary talents. From an examination of the product made in the A. M. A. Chemical Laboratory it was concluded that a solution having essentially the same characteristics as that labeled "Formula No. 1020, J. R. Brinkley, M. D." may be prepared by dissolving one part of indigo in 100,000 parts of water. Such a solution is essentially water to which has been added a dash of blue dye. The kind of genius capable of taking a body of water like Lake Erie, coloring it with a dash of bluing and then selling the stuff at $100 for six ampules represents a type which all the world up to now has never been able to equal. John R. Brinkley is the absolute apotheosis in his field.—(*J. A. M. A.*, April 3, 1937, p. 1196).

Culture of Human Marrow: Details of Simple Method

Edwin E. Osgood and Inez E. Brownlee, Portland, Ore. (*Journal A. M. A.*, May 22, 1937), outline a technic of marrow culture which has proved simple and entirely satisfactory for many types of investigation. The method described, while not producing the maximal rate of multiplication or the maximal rate of maturation, does permit the two to occur simultaneously much as in normal marrow. Since it was necessary to determine the proper oxygen and carbon dioxide tension, the ph, the volume of fluid per unit number of nucleated cells, the thickness of the layer of fluid over these cells, the optimal frequency of changing the mediums and the gas mixture, the optimal temperature, the speed of centrifugation, and many other factors as well as the composition of the medium, more than 400 experiments have been performed in the development and investigation of the technic. Among the noteworthy observations in the series of experiments was the wide variation in conditions which marrow cells would tolerate. The method described employs no apparatus not present in a well equipped laboratory and no technic not known to a well trained technician and it is suitable for quantitative experiments. The authors have cultured blood, spleen and lymph nodes by this method as well as marrow. It could undoubtedly be used for many other tissues. They have had living motile marrow cells at 50 days after removal from the human body and as long as six weeks after the death of the patient from whom the marrow was obtained. Undoubtedly cultures could be retained much longer if portions were not removed at such frequent intervals, thus eventually depleting the supply.

BOOK REVIEWS

Operative Surgery. By J. Shelton Horsley, M. D., Attending Surgeon, St. Elizabeth's Hospital, Richmond, and Isaac A. Bigger, M. D., Professor of Surgery, Medical College of Virginia. Fourth edition. Two volumes. Pp. 1387, with 1259 illustrations. Cloth. Price, $15.00. St. Louis: C. V. Mosby Company, 1937.

This new edition of Horsley is a delight. We have followed his writing since the first edition in 1921, and we see a consistent growth in values. There is so much that is new—considerable of which has never appeared before in a book—that this edition appears in two volumes, yet it is definitely stated that the work is not intended to be encyclopedic. The subject is still approached from the physiological viewpoint, as in the previous editions. Whenever a particular procedure is recommended it is because the author has found it best in his own work. The descriptions are clear and concise, and the illustrations really illustrate—over 500 of them are new. The index is adequate.

There are four contributors to this work, who add a further degree of authority to the sections on neuro-surgery, orthopedics, plastics and urology.

This work, solely a Richmond product, is one of the distinctly superior texts in its field. We look upon it as the forerunner of a fifth edition.

Surgical Pathology of the Thyroid Gland. By Arthur E. Hertzler, M. D., Professor of Surgery, University of Kansas. Pp. 298, with 238 illustrations. Cloth. Price ——. Philadelphia: J. B. Lippincott Company, 1937.

This book is the eighth of ten monographs on surgical pathology, by the same author. Its value lies in the fact that the author has had a vast clinical experience and has been able to follow his patients to an exceptional degree because of his continued residence in a small community for more than forty years.

In it he lays down the latest concepts of the pathology of the thyroid gland, based on a thorough study and re-study of the history, clinical examination, laboratory examination, operation, gross specimen, and microscopic slide. This systematic search for the ultimate truth is not surpassed by any surgeon-pathologist, anywhere. His critical attitude is summarized in his statement: "We have suffered in the past with a surplus of conclusions and a paucity of premises based on the observation of facts."

The text is clear and entertaining, and between the lines can be read the ripened philosophy of one who has seen much and learned much, yet who withal is still an eager inquirer. The illustrations are unusually good. The book should be read by every physician who treats a thyroid patient.

Synopsis of Pediatrics. By John Zahorsky, M. D., Professor of Pediatrics, St. Louis University School of Medicine. Assisted by T. S. Zahorsky, M. D., Instructor in Pediatrics, St. Louis University School of Medicine. Second edition. Pp. 367, with 80 illustrations and 9 color plates. Cloth. Price, $4.00. St. Louis: C. V. Mosby Company, 1937.

The sections on diagnosis and therapeusis have been brought up to date in this second edition. Several paragraphs have been rewritten and many new sections have been added. It is an excellent book for a practitioner to have, in that it contains in compact form the essential points of almost every phase of pediatrics.

Diabetes: A Modern Manual. By Anthony M. Sindoni, Jr., M. D., Chief of the Diseases of Metabolism, St. Agnes' Hospital, Philadelphia, with an introduction by Morris Fishbein, M. D., editor of the Journal A. M. A. and a foreword by George M. Piersol, M. D. Pp. 240. Cloth. Price $2.00. New York: McGrew Hill Book Company, 1937.

The work approaches the problem of reaching a common meeting ground between the patient and the physician in a slightly different manner than usual. The first of its four parts is of the question and answer type in which the author endeavors to ask the common questions a patient would ask and then undertakes to answer them in words the patient can comprehend. This is rather a departure from the usual method and is to be commended. In this part the author makes the statement, repeated later in the book, that insulin (regular) should be administered twenty minutes after meals. This is contrary to the usually accepted teaching. He also stresses the point that insulin should be clear, but neglects to point out the fact that protamine zinc insulin is cloudy and must be agitated before administration. However, he rectifies this error later in the work when he discusses protamine zinc insulin more fully. He cites rather dramatic episodes in his practice which illustrate points he is trying to make but which rather cheapen the tone of the work. The food tables are standard, and he includes the food values of various beverages, a very desirable addition. There are several graphs in the work, but no illustrations. The author stresses throughout the necessity of close cooperation between the patient and the physician, and decidedly warns against self treatment by the diabetic. A safe book to be in the hands of the laity.

Death Rides With Venus. By Arthur C. Palm, Director, Social Hygiene Foundation, Cleveland. Pp. 157. Cloth. Price, $1.50. New York: Greystone Press, 1937.

This is just another book on the venereal diseases, written by a layman for laymen. With a sharp and truculent pen, it does make interesting reading spots, though many of its statements and conclusions will not be taken at face value by the informed portion of its readers. He very considerately blames the widespread prevalence of venereal diseases on the medical profession! One would expect such excoriation from an author who can villify thus (p. 71): "Today I know the average doctor for what he really is, an uninformed, haphazard healer who hides his indecision behind a disguise of long words and ponderous phrases."

He pays his negative respects also to the hospitals, the druggists, the industrialists, the public health officers, the press, the radio, the church, and the school. Since these, also, are wrong, the author must feel very lonely indeed! Somehow or other, the reading of this book gives me the peeves: maybe I'm only an "average doctor."